



## Section : . Services and system administration

### Module : . Working with WMS



#### Working with WMS in context

*“QGIS can connect to remote services allowing you to access the layers and then load them locally as georeferenced raster images.”*

WMS describes a protocol designed to serve georeferenced images over the internet. In QGIS you can set up a connection to a remote service and access the data. In some cases, the access to the data is prohibited and you have to acquire authorization to get the data.

In this module, we will explore remote data by accessing it over the WMS protocol.

#### You try:

##### Goal: To explore remote layers in QGIS

- Click on the WMS connection in the **Manage Layers Toolbar** or in the **Layers menu > Data Source Manager**
- Alternatively you can use the **Browser** to create a new WMS connection.
- Add the URL using the examples given in the specification. Use the first URL provided.
- Select the layer *LandCover\_2010\_DRBC*
- Select the image encoding to *PNG*
- Add the layer to QGIS and zoom to the extent of the layer.
- Inspect the legend of the layer.
- Add other layers from the same service you defined above and experiment with the different **image encoding**.
- Add other WMS connections using the URL provided and explore the layers available.

| Name         | Expectation                                                                                                                                                                                                       |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NASA         | <a href="https://imagery.pasda.psu.edu/arcgis/services/pasda/UrbanTreeCanopy_Landcover/MapServer/WmsServer">https://imagery.pasda.psu.edu/arcgis/services/pasda/UrbanTreeCanopy_Landcover/MapServer/WmsServer</a> |
| GEBCO Global | <a href="https://www.gebco.net/data_and_products/gebco_web_services/web_map_service/mapserv?">https://www.gebco.net/data_and_products/gebco_web_services/web_map_service/mapserv?</a>                             |
| ICPAC        | <a href="http://geoportal.icpac.net/geoserver/wms?">http://geoportal.icpac.net/geoserver/wms?</a>                                                                                                                 |



#### More about WMS data in QGIS

In this module, we accessed remote data using the WMS protocol and loaded it locally. In order to access the data, users have to be connected to the internet unless the remote server is on the local network. In this module when we clicked on the WMS connection it returned a list of layers in which we choose a single layer or a couple of layers to load them into QGIS. The property of the WMS which we have just used is

called **GetMap**. The WMS protocol has other properties besides the **GetMap**. Here is a list of the other properties of the WMS listed below.

| Property        | Use                                                                                 |
|-----------------|-------------------------------------------------------------------------------------|
| GetMap          | Get a georeferenced map from the server                                             |
| GetCapabilities | Returns metadata about the service ie CRS of layers and number of layers configured |
| GetFeatureInfo  | Allows users to query the attribute data of a WMS layer at a specific location      |

Most GIS software has servers which are capable of serving data using the WMS protocol. Below are a few examples

| Software    | Notes                   |
|-------------|-------------------------|
| QGIS Server | Works in sync with QGIS |
| GeoServer   | Nice user interface     |
| MapServer   | No GUI. Very fast       |



### Check your knowledge:

1. Is it possible to change the symbology of the layer being served using WMS:
  - a. *True*
  - b. *False*
2. Is it possible to change the transparency of layers from WMS:
  - a. *True*
  - b. *False*
3. Client sensitive data can be accessed through WMS:
  - a. *WMS is for public data only*
  - b. *Yes, It just needs to be authenticated*
  - c. *WMS protocol is not safe for handling private data.*



### Module video tutorial:

- <https://youtu.be/ebIjBWBTtoo>



### Further reading:

- Adding WMS [https://docs.qgis.org/3.16/en/docs/training\\_manual/online\\_resources/wms.html](https://docs.qgis.org/3.16/en/docs/training_manual/online_resources/wms.html)